

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

Morton M. MOWER, M.D.

Continuation of

Appln. No.: 09/231,570

Group Art Unit: 3762

Filed: herewith

Examiner: S. Getzow

For: ANTITACHYCARDIAL PACING

\* \* \* \* \*

PRELIMINARY AMENDMENT

\* \* \* \* \*

Hon. Commissioner for Patents  
Washington, D.C. 20231

Dear Sir:

Prior to calculation of the filing fee, please amend this  
continuation application as follows:

IN THE CLAIMS:

**Cancel claims 3, 6-14, and 16-29.**

**Amend claims 1, 2, 4, 5, and 15 to read as follows:**

1. (Amended) A method of operating an implantable cardiac  
stimulator to perform cardioverting, the cardiac stimulator  
having output means for delivering electrical stimulation of a  
predetermined polarity, amplitude, shape and duration, the  
method comprising:

sensing the onset of tachycardia;

applying pulses of biphasic pacing stimulation at a first  
intensity level selected from the group consisting of at the

Date: August 14, 2001

Atty. Dkt. No.: 2206-006 C

diastolic depolarization threshold, below the diastolic depolarization threshold or above the diastolic depolarization threshold, wherein each pulse of biphasic pacing stimulation comprises:

a first stimulation phase with a first phase polarity, a first phase amplitude, a first phase shape and a first phase duration; and

a second stimulation phase with a second phase polarity, a second phase amplitude, a second phase shape and a second phase duration; and

determining whether pacing capture has occurred.

2. (Amended) The method of operating an implantable cardiac stimulator as in claim 1, wherein it is determined that capture has not occurred, further comprising:

increasing the stimulation intensity level by predefined increments until capture occurs.

4. (Amended) The method of operating an implantable cardiac stimulator as in claim 1, wherein it is determined that capture has occurred, further comprising:

halting biphasic pacing stimulation.

5. (Amended) The method of operating an implantable cardiac stimulator as in claim 1, wherein the first phase polarity is positive.

15. (Amended) The method of operating an implantable cardiac stimulator as in claim 1, wherein the first phase duration is at least as long as the second phase duration.

**Add new claims 30-39 as follows:**

-- 30. The method of operating an implantable cardiac stimulator as in claim 1, wherein the first stimulation phase is initiated greater than 200 milliseconds after completion of a cardiac beating cycle.

31. The method of operating an implantable cardiac stimulator as in claim 1, wherein the first stimulation phase comprises an anodal stimulus.

32. An implantable cardiac stimulator to perform cardioverting, the cardiac stimulator comprising:

sensing means for sensing the onset of tachycardia;

output means for delivering, in response to the sensing means, electrical stimulation of a predetermined polarity, amplitude, shape and duration to cause application of pulses of

biphasic pacing stimulation at a first intensity level selected from the group consisting of: at the diastolic depolarization threshold, below the diastolic depolarization threshold, and above the diastolic depolarization threshold; and

means for determining whether capture has occurred;

wherein each pulse of biphasic pacing stimulation comprises:

a first stimulation phase with a first phase polarity, a first phase amplitude, a first phase shape and a first phase duration; and

a second stimulation phase with a second phase polarity, a second phase amplitude, a second phase shape and a second phase duration.

33. The cardiac stimulator as in claim 32, wherein in the event that the means for determining determines that capture has not occurred, the output means increases the stimulation intensity level by predefined increments until capture occurs.

34. The cardiac stimulator as in claim 32, wherein in the event that the means for determining determines that capture has occurred, the output means halts biphasic stimulation.

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35. The cardiac stimulator as in claim 32, wherein the first stimulation phase comprises an anodal stimulus.

36. The cardiac stimulator as in claim 32, wherein the first phase duration is at least as long as the second phase duration.

37. An implantable cardiac stimulator device comprising:  
plural electrodes;

sensing circuitry connected to the plural electrodes and adapted to sense the onset of tachycardia;

detecting circuitry connected to the sensing circuitry and adapted to detect whether pacing capture has occurred; and

pulse generating circuitry connected to the plural electrodes and adapted to generate, in response to the sensing circuitry, electrical pulses of a predetermined polarity, amplitude, shape and duration to cause application of pulses of biphasic pacing stimulation at a first intensity level selected from the group consisting of: at the diastolic depolarization threshold, below the diastolic depolarization threshold, and above the diastolic depolarization threshold; and

wherein each pulse of biphasic pacing stimulation comprises:

a first stimulation phase with a first phase polarity, a first phase amplitude, a first phase shape and a first phase duration; and

a second stimulation phase with a second phase polarity, a second phase amplitude, a second phase shape and a second phase duration.

38. The implantable cardiac stimulator device as in claim 37, wherein, in the event that the detecting circuitry determines that capture has not occurred, the pulse generating circuitry increases the stimulation intensity level by predefined increments until capture occurs.

39. The implantable cardiac stimulator device as in claim 37, wherein, in the event that the detecting circuitry determines that capture has occurred, the pulse generating circuitry halts biphasic pacing stimulation. --

**REMARKS**

Claims 1, 2, 4, 5, 15, and 30-39 are pending in the application. Claims 3, 6-14, and 16-29 have been canceled.

**PRELIMINARY AMENDMENT**

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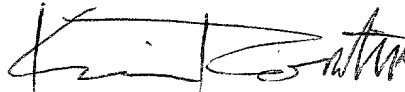
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No new matter has been entered.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached pages are captioned "VERSION WITH MARKINGS TO SHOW CHANGES MADE".

The above amendments are to focus prosecution in this continuation application on claims that were rejected in the parent application.

Respectfully submitted,



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VERSION WITH MARKINGS TO SHOW CHANGES MADE

Amend claims 1, 2, 4, 5, and 15 as follows:

1. (Amended) A method of operating an implantable  
[cardioverter-defibrillator (ICD)] cardiac stimulator to perform  
cardioverting, the [ICD] cardiac stimulator having output means  
for delivering electrical stimulation of a predetermined  
polarity, amplitude, shape and duration, the method comprising:

sensing the onset of [arrhythmia] tachycardia;

applying pulses of biphasic pacing stimulation at a first  
intensity level selected from the group consisting of at the  
diastolic depolarization threshold, below the diastolic  
depolarization threshold or above the diastolic depolarization  
threshold, wherein each pulse of biphasic pacing stimulation  
comprises:

a first stimulation phase with a first phase polarity,  
a first phase amplitude, a first phase shape and a first  
phase duration; and

a second stimulation phase with a second phase  
polarity, a second phase amplitude, a second phase shape  
and a second phase duration; and

determining whether pacing capture has occurred.



2. (Amended) The method of operating an implantable cardiac stimulator [ICD] as in claim 1, wherein it is determined that capture has not occurred, further comprising:

increasing the stimulation intensity level by predefined increments until capture occurs.

4. (Amended) The method of operating an implantable cardiac stimulator [ICD] as in claim 1, wherein it is determined that capture has occurred, further comprising:

halting biphasic pacing stimulation.

5. (Amended) The method of operating an implantable cardiac stimulator [ICD] as in claim 1, wherein the first phase polarity is positive.

15. (Amended) The method of operating an implantable cardiac stimulator [ICD] as in claim 1, wherein the first phase duration is at least as long as the second phase duration.